Low Power, Wide Temperature Range DACs

FEATURES
- 10- and 12-bit models
- Very low power: less than 300 mW
- Wide operating temperature range: -55°C to +125°C
- MIL-STD-883 Rev. C, Level B or commercial processing
- 18 pin hermetic package

DESCRIPTION
This Series is specifically designed and tested for low power operation. The models feature low total power dissipation of less than 300 mW. Each unit incorporates a pretrimmed output amplifier and a low power internal reference. The DAC347 Series are high performance, general purpose, digital to analog converters utilizing matched CMOS current switches and ultra stable thin-film nichrome resistor networks. All DAC347 Series models provide optimum stability in performance over the full -55°C to +125°C temperature range.

Unipolar models use complementary binary coding and bipolar models use complementary offset binary coding. Each DAC347 Series converter comes packaged in a hermetically sealed 18-pin package, ideal for applications where maximum performance in minimum space is required.

FUNCTIONAL DIAGRAM
SPECIFICATIONS

(Typical @ +25°C using nominal supplies unless otherwise noted.)

SERIES
DAC347

TYPE
Fixed Ref, Volt Output

DIGITAL INPUT

<table>
<thead>
<tr>
<th>Resolution</th>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>–10 option</td>
<td>10-bits</td>
<td></td>
</tr>
<tr>
<td>–12 option</td>
<td>12-bits</td>
<td></td>
</tr>
<tr>
<td>Coding Unipolar</td>
<td>Comp. Binary</td>
<td></td>
</tr>
<tr>
<td>Bipolar</td>
<td>Comp Offset Binary</td>
<td></td>
</tr>
</tbody>
</table>
| Logic Compatibility
|                    |
| VᵢH=2.4V (min)   |        |                      |
| VᵢL=0.8V (max)  |        |                      |
| IᵢH=IᵢL=1μA (max)|      |

ANALOG OUTPUT

Voltage Output
-1-U option 0 to +10V
-1-B option ±5V
-1-G option ±10V

Impedance 0.1
Current ±5mA

REFERENCE Internal

STATIC PERFORMANCE

Integral Linearity ±1/2 LSB (max)
Differential Linearity ±1/2 LSB ±1LSB (max)
End Point Accuracy ±0.1%

DYNAMIC PERFORMANCE

Settling Time for a Worst Case Digital Change
-10 models (to ±0.05%) 20μS (max)
-12 models (to ±0.05%) 20μS (max)

-25°C TO +85°C OPERATION

Change in Accuracy
-10 models ±0.15% F.S.R.
-12 models ±0.1% F.S.R.
Differential Linearity
-10 models ±0.1% F.S.R.
-12 models ±0.025% F.S.R.
Linearity Error
-10 models ±0.05% F.S.R.
-12 models ±0.0125% F.S.R.

-55°C TO +125°C OPERATION

Change in Accuracy
-10 models ±0.7% F.S.R
-12 models ±0.35% F.S.R
Differential Linearity
-10 models ±0.1% F.S.R
-12 models ±0.05% F.S.R
Linearity Error
-10 models ±0.05% F.S.R
-12 models ±0.025% F.S.R

POWER REQUIREMENTS

Power Supply +15V, ±3% @ 6mA (typ), 9mA (max)
-15V, ±3% @ 9mA (typ), 12mA (max)

Power Supply Rejection Ratio
0.001% % (typ), 0.002% % (max)

ENVIRONMENTAL

Operating Temperature –55°C to +125°C
Range
B Versions
0°C to 70°C
C Versions

MECHANICAL

Case Style 18 pin ceramic

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>MODEL</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAC347LPB-12-U</td>
<td>MIL, 12-Bit. 0 to +10V</td>
</tr>
<tr>
<td>DAC347LPC-10-G</td>
<td>Comm 10-Bit, ±10V</td>
</tr>
<tr>
<td>DAC347LPC-12-G</td>
<td>Comm, 12-Bit, ±10V</td>
</tr>
<tr>
<td>DAC347LPC-10-B</td>
<td>Comm, 10-Bit, ±5V</td>
</tr>
<tr>
<td>DAC347LPC-12-B</td>
<td>Comm, 12-Bit, ±5V</td>
</tr>
<tr>
<td>DAC347LPC-10-U</td>
<td>Comm, 10-Bit. 0 to +10V</td>
</tr>
<tr>
<td>DAC347LPC-12-U</td>
<td>Comm, 10-Bit. 0 to +10V</td>
</tr>
</tbody>
</table>

LPC models are commercially processed.
LPB models are processed to MIL-STD-883
Rev. C, Level B

Specifications subject to change without notice.